

Application No.: 09/880,515

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method for detection and measurement of a targeted biological sample, comprising the steps of:

providing a multiplicity of optically encoded microbeads,
providing said optically encoded microbeads with a capture ligand,
providing said optically encoded microbeads with bioagent-specific antibodies,

containing said optically encoded microbeads thereby providing contained optically encoded microbeads,

adding a sample to said contained optically encoded microbeads, said sample possibly containing the targeted biological sample,

placing said contained optically encoded microbeads and said sample in a mixing holder for sufficient time for the targeted biological sample to adequately bind said optically encoded microbeads,

adding fluorescent labeled antibodies to said contained optically encoded microbeads and said sample for attachment to said bioagent-specific antibodies,

attaching at least some of said optically encoded microbeads to a disposable capture substrate containing an array of individual attachment sites for attaching said optically encoded microbeads thereto wherein each individual attachment site captures a single optically encoded micro bead with capture ligand, bioagent-specific antibody, fluorescent labeled antibody, and any targeted biological sample,

washing said substrate and attached optically encoded microbeads,

inserting said substrate into an optical detection system, and

optically decoding said optically encoded microbeads by identifying said optically encoded microbeads and said fluorescent labeled antibodies for detection and measurement of the targeted biological sample.

2. (Previously Presented) The method of Claim 1, wherein said step of containing said microbeads is carried out by placing said optically encoded microbeads in a cuvet.

3. (Previously Presented) The method of Claim 1, additionally including the step of vibrating said mixing holder during said time said contained optically encoded microbeads are placed therein.

4. (Previously Presented) The method of Claim 1 additionally including the step of designing each of said array of attachment sites on a dipstick to capture a single optically encoded microbead.

5. (Previously Presented) The method of Claim 1, additionally including the step of locating said patterned array of attachment sites on said substrate at a spatial distance between each said array as determined by a resolution of said optical detection system.

6. (Previously Presented) The method of Claim 1, wherein said step of washing said substrate is carried out to improve the sensitivity of the detection process by removing from the substrate surface all unbound biological constituents and reducing the background solution fluorescence.

7. (Previously Presented) The method of Claim 1, including the step of placing said optically encoded microbeads in a disposable bead pack.

8. (Previously Presented) The method of Claim 1, additionally including the steps of providing each said optically encoded microbead with a different color and providing each said optically encoded microbead with a substrate capture point.

9. (Cancelled)

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34. (Cancelled)
35. (Cancelled)

36. (Previously Presented) The method of Claim 1, additionally including the step of providing said contained optically encoded microbeads from the

group consisting of optically encoded optically encoded microbeads, charged optically encoded microbeads, and optically encoded microbeads with optically encoded shells.

37. (Previously Presented) The method of Claim 1, wherein said step of attaching said optically encoded microbeads is carried out in an ordered array.

38. (Previously Presented) The method of Claim 1, wherein wherein said step of attaching said optically encoded microbeads is carried out in a disordered array.

39. (Previously Presented) The method of Claim 1, wherein said step of attaching said optically encoded microbeads to a disposable capture substrate is carried out by providing said substrate with a plurality of wells or an array of channels.

40. (Previously Presented) The method of Claim 1, wherein said step of attaching said optically encoded microbeads is carried out by an array of magnetic or electrode capture pads.

41. (Previously Presented) A method for detection and measurement of biological molecules, comprising the steps of:

- providing a quantity of optically encoded microbeads,
- adding a capture ligand to said optically encoded microbeads,
- adding bioagent-specific antibodies to said optically encoded microbeads,
- containing said optically encoded microbeads thereby providing contained optically encoded microbeads,
- adding a sample to said contained optically encoded microbeads, said sample possibly containing the biological molecules,
- adding fluorescent labeled antibodies for attachment to said bioagent specific antibodies,

providing a disposable capture substrate containing an array of individual attachment sites for attaching said optically encoded microbeads thereto,

inserting said disposable capture substrate containing an array of individual attachment sites into said contained optically encoded microbeads for capturing said optically encoded microbeads wherein each individual attachment site captures a single optically encoded micro bead with capture ligand, bioagent-specific antibody, fluorescent labeled antibody, and any targeted biological molecule,

washing said substrate and said optically encoded microbeads,

inserting said disposable capture substrate into a detection system, and

optically decoding said optically encoded microbeads by identifying said optically encoded microbeads and said fluorescent labeled antibodies for identification and measurement of the biological molecules attached to said optically encoded microbeads.

42. (Previously Presented) The method of Claim 41, additionally including the step of forming said contained optically encoded microbeads to be optically encoded.

43. (Previously Presented) The method of Claim 42, wherein said step of decoding of said optically encoded microbeads is carried out in an optical detecting system.

44. (New) A method for pathogen detection comprising the following steps in any order:

providing a multiplicity of optically encoded microbeads,

providing capture ligands that attach to each of said microbeads,

providing bioagent-specific antibodies that attach to each of said microbeads,

adding a sample to mix with said microbeads, capture ligands, and bioagent-specific antibodies, said sample containing target biological molecules and bind the microbeads,

adding fluorescent labeled antibodies to mix with said microbeads, capture ligands, bioagent-specific antibodies, and target biological molecules, for attachment to said target biological molecules,

inserting a disposable capture substrate containing an array of individual attachment sites into said microbeads, capture ligands, bioagent-specific antibodies, and target biological molecules for capturing said microbeads, each individual attachment site capturing a single micro bead with capture ligand, bioagent-specific antibody, fluorescent labeled antibody, and any target biological molecule, and

optically decoding said microbeads using an optical detection system for optically decoding said microbeads for identification and measurement the said target biological molecules.

45. (New) The method of Claim 44, wherein said microbeads are placed in a mixing holder for sufficient time for said target biological molecules to adequately bind with said bioagent-specific antibodies.

46. (New) The method of Claim 44, wherein said placing said microbeads in a mixing holder is carried out prior to adding said fluorescent labeled antibodies.

47. (New) The method of Claim 44, additionally including washing said disposable capture substrate and said microbeads.

48. (New) The method of Claim 44, wherein said array of attachment sites define a patterned array.

49. (New) The method of Claim 44, wherein said array of attachments sites define an ordered array.